NAVSEA
STANDARD ITEM

FY-05

ITEM NO: 009-35
DATE: 29 AUG 2003
CATEGORY: I

1. SCOPE:

1.1 Title: Confined Space Entry, Certification, Fire Prevention and Housekeeping; accomplish

2. REFERENCES:

2.1 Standard Items

2.2 29 CFR Part 1915, Occupational Safety and Health Standards for Shipyard Employment

2.3 29 CFR Part 1910.134, Occupational Safety and Health Standards, Respiratory Protection

2.4 NFPA Standard 51B, Standard for Fire Prevention During Welding, Cutting, and Other Hot Work

2.5 NFPA Standard 312, Standard for Fire Protection of Vessels During Construction, Repair, and Lay-up

3. REQUIREMENTS:

3.1 Comply with the requirements of 2.2 through 2.5 and this item to determine whether or not an explosive or other dangerous atmosphere exists in tanks, spaces, and associated piping, including adjacent tanks, spaces, and piping, aboard the ship and control hot work and entry to those spaces to preclude damage to the ship or injury to personnel during the performance of this Job Order.

3.1.1 Submit one legible copy, in hard copy or electronic media, of a list of tanks or spaces to be opened or certified to the SUPERVISOR at least 24 hours prior to commencement of work.

3.1.1.1 Comply with additional requirements of 009-88 of 2.1 when accomplishing work in Collection, Holding and Transfer (CHT) and Mogas tanks, spaces, or associated piping.

3.1.2 Provide initial and annual update training for Competent Persons by utilizing a National Fire Protection Association (NFPA) Certified

Marine Chemist or NFPA training program meeting the requirements of Section 1915.7 of 2.2. The length of the initial training class shall be at least 24 hours. Annual update training shall be at least 8 hours.

3.1.3 Post a copy of the Marine Chemist's certificate, Certified Industrial Hygienist's test/inspection record, or Competent Person's test/inspection record at each access to the affected space while work in the space is in progress. A copy of the certificate or test/inspection record shall also be delivered to a location designated by the SUPERVISOR. In the event that the space is found to be NOT SAFE FOR WORKERS/NOT SAFE FOR HOT WORK, the space shall be posted accordingly and the SUPERVISOR and ship shall be notified immediately. ***The posted copy shall be clearly visible and legible.***

3.1.3.1 Initial certification of spaces that require a Certified Marine Chemist's certificate or Certified Industrial Hygienist's record of test/inspection in support of work operations shall be effective until conditions change which would void the certificate/record of test/inspection.

3.1.3.2 For those certified spaces which employees will enter, a Competent Person shall visually inspect and test each space certified as ENTER WITH RESTRICTIONS or SAFE FOR WORKERS as often as necessary, and, as a minimum, prior to entry by employees on a daily basis.

3.1.3.3 For those certified spaces affected by hot work, a Competent Person shall visually inspect and test each space certified as SAFE FOR HOT WORK as often as necessary and, as a minimum, daily prior to commencement of hot work to ensure that conditions established by the certificate are maintained. When hot work is conducted continuously, the affected spaces shall be visually inspected, tested, and recorded on a daily basis to maintain the SAFE FOR HOT WORK certification.

3.1.3.4 If a Competent Person finds that the conditions within a certified space fail to meet the applicable requirements for which it was certified, work in the space shall be stopped and may not be resumed until the space has been recertified by a Marine Chemist.

3.1.3.5 For those spaces where only Competent Person tests and inspections are required in accordance with 2.2, a Competent Person shall visually inspect and test each space as often as necessary and, as a minimum, daily prior to entry or commencement of hot work to ensure that conditions are safe.

3.1.3.6 After the Competent Person has determined initially that a space is safe for entry and finds subsequently that the conditions within the tested space fail to meet the requirements of 2.2, work shall be stopped until the conditions in the tested space are corrected, the space is retested, and a new record of tests/inspections is recorded and posted.

3.1.4 Tank cleaning personnel shall be trained annually on safety practices to include a discussion of safety information found in Subparts A, B, and Section 1915.152 of Subpart I of 2.2.

3.1.5 Submit one legible copy, in hard copy or electronic media, of each of the following documents to the SUPERVISOR prior to the accomplishment of work requiring the services identified below.

3.1.5.1 A roster of designated Competent Persons, along with contractor certification that the training in 3.1.***2*** has been completed within the past year. Updates to the roster each time Competent Persons are added, deleted, or retrained.

3.1.5.2 A list of Competent Person(s) and tank cleaning personnel who will enter or work in confined spaces, including company name, badge number, and date training was provided in accordance with 3.1.2 and 3.1.4.

3.1.5.3 A list of the names of the Shipyard/Plant Rescue Team Members, along with contractor certification that training requirements of Subpart B of 2.2 have been accomplished and are current for each Rescue Team Member, or documentation of arrangements made for an outside rescue team to respond promptly to a request for rescue service.

3.1.5.4 Describe the manner by which the requirements for | fire watches shall be implemented using Ship's Force personnel, including the manner in which the ship's Commanding Officer's designated representative will be notified in case of absence of the assigned fire watch. Ship's Force will provide visible means of identifying trained fire watches, i.e., badge, sticker, vest, etc.

3.1.6 Spaces which are determined to contain Immediately Dangerous to Life or Health (IDLH) atmospheres shall never be entered except for emergency rescue or for short duration for installation of ventilation equipment in accordance with 2.2 and 2.3. When entering IDLH spaces for the purpose of installing ventilation, notify the SUPERVISOR prior to entry. Notifications of rescue shall be made as soon as possible.

3.1.7 Confirm that all personnel have exited the space prior to closure of tanks, voids, and cofferdams. Designate one person to account for all personnel who may have entered the space.

3.2 Provide a written notice for each job or separate area of hot work aboard ship.

3.2.1 The notice shall state a description of the work to be done, the specific location of the hot work and compartments adjacent to decks, bulkheads, and similar structures upon which hot work is to be accomplished, the time hot work will commence, current gas-free status of the area (if required), the absence or existence of combustible material in the vicinity of

the operation, and if combustible material exists, what action shall be taken to protect the material from fire, the provision and assignment of a fire watch, and the affirmation that conditions at the work site (ventilation, temporary lighting, accesses) permit the fire watch to observe all areas where the hot work constitutes a fire hazard.

3.2.2 The notice shall affirm that a suitable, fully-charged fire extinguisher shall be available at the job site and provide for an inspection of the area 30 minutes after completion of the hot work or the cessation of hot work at the job site as the final action to complete the notice.

3.2.3 The notice shall be signed by a supervisor specifically designated as responsible for coordination of the hot work and the fire watch requirement.

3.2.4 One copy of each notice shall be given to the SUPERVISOR and one copy to the Commanding Officer's designated representative.

3.2.***4.1*** The notice to the Commanding Officer's designated representative shall precede the initiation of the actual hot work in order to permit the Commanding Officer to designate a member of the crew to observe the operation, if desired.

3.2.***4.2*** Notification of hot work planned Tuesday through Friday shall be delivered to the Commanding Officer's designated representative at least 30 minutes and not more than 24 hours preceding start of work.

3.2.***4.3*** Notification of hot work planned over a weekend or Monday following that weekend shall be delivered to the Commanding Officer's designated representative no later than 0900 on the Friday immediately preceding that weekend.

3.2.***4.4*** Notification of hot work planned on a federal holiday and on the day following the federal holiday shall be delivered to the Commanding Officer's designated representative no later than 0900 of the last working day preceding the federal holiday.

3.2.***4.5*** The notice shall be effective for 24 hours unless a shorter period is specified in the contract or the gas-free status of the work area or system requires stopping the work. A new notice is required if work is interrupted due to loss of gas-free status.

3.3 ***Request sufficient fire watches from Ship's Force to provide fire watches*** at all affected areas where hot work is being accomplished. Provide ***each Ship's Force fire watch with*** fire extinguishing equipment as described in 2.2, 2.4, and 2.5. Fire watches and equipment shall meet the following requirements, as a minimum:

3.3.1 A fire watch(es), other than the hot work operator, is required when:

3.3.1.1 Any flame cutting, welding, plasma cutting, arcing and gouging, electric arc welding, thermal spraying, or any other hot work which produces sparks or slag that can be dropped or thrown or that causes heat to be transferred through a deck, bulkhead, or overhead to a location not visible to the hot work operator is being done.

3.3.1.2 Combustibles have not been removed or protected from heat conduction or ignition sources.

3.3.1.3 Equipment cannot be protected from falling sparks.

3.3.1.4 Openings in decks, bulkheads, or overheads cannot be protected.

3.3.1.5 Ducts and conveyor systems cannot be blanked off, protected or shut down.

3.3.2 Each fire watch attending worker(s) performing hot work shall be equipped with a fully-charged and operable fire extinguisher, and shall remain at the job site for 30 minutes from the time the hot work is completed unless the contractor's Hot Work Supervisor surveys the affected work area and determines that there is no further fire hazard.

3.3.2.1 In the event that the fire watch leaves his/her post without permission of the person accomplishing the hot work, stop the hot work and immediately report the absence of the fire watch to the ship's fire watch division. Do not resume hot work until a fire watch is assigned and on station.

3.3.3 Where several workers are performing hot work at one site, the fire watch shall have a clear view of and immediate access to each worker performing hot work.

3.3.3.1 No more than four workers shall be attended by a single fire watch.

3.3.4 In cases in which hot material from hot work may involve more than one level, as in trunks and machinery spaces, a fire watch shall be stationed at each level unless positive means are available to prevent the spread or fall of hot material.

3.3.5 In cases where hot work is to be performed on a bulkhead or deck, combustible material shall be removed from the vicinity of the hot work on the opposite side of the bulkhead, overhead, or deck, and a fire watch shall be posted at each location.

3.3.5.1 If multiple blind compartments are involved in any hot work job, fire watches shall be posted simultaneously in each blind area.

3.4 Locate oxygen, acetylene, fuel gas, or gas supply systems off the ship. Manifolds connected to pierside supply systems may be placed on board ships as long as they are located on a weather deck and equipped with a shutoff valve located on the pier. The pierside shutoff valve shall be in addition to the shutoff valve at the inlet to each portable outlet header required by 2.2.

3.4.1 Liquid oxygen (LOX) tanks used for fuel gas/oxygen operations shall be stored to prevent collisions by trucks, forklifts, falling objects, etc.

3.4.2 LOX tanks shall be staged in designated locations on the quay wall/pier to be determined jointly by the contractor/ship/SUPERVISOR.

3.4.3 When gas cylinders are in use on board ship, they shall be located on the weather decks or in a location determined jointly by the contractor/ship/SUPERVISOR and shall be secured and in an upright position. The number of in-use cylinders shall be limited to those which are required for work in progress and which have pressure regulators connected to the cylinder valves. On-board reserve gas cylinders shall not exceed one-half the number of in-use cylinders and shall be located in a remote area of the weather decks or in a location determined jointly by the contractor/ship/ SUPERVISOR. Reserve acetylene cylinders shall be secured in an upright position.

3.4.4 When not in use, gas cylinders and manifolds on board shall have valves closed, lines disconnected, protective cover (cap) in place, and shall be secured. Acetylene cylinders shall be secured in an upright position.

3.4.4.1 In order to eliminate the possibility of fire in confined and enclosed spaces as a result of gas escaping through leaking or improperly closed gas valves, the gas supply to the torch shall be shut off at the gas source whenever the torch is not to be used or whenever the torch is left unattended for a substantial period of time, such as during the lunch hour.

3.4.4.2 Overnight, at the change of shifts, or when the work operation is complete, the torch and hose shall be removed from confined spaces, including all tanks and voids.

3.4.4.3 Overnight, at the change of shifts, or when the work operation is complete, fuel gas and oxygen hoses shall be immediately removed from enclosed spaces unless alternate procedures are approved by the SUPERVISOR.

3.4.5 Upon completion of oxygen - fuel gas system hook-up, accomplish a pressure drop test to include the torch, hoses, and gages.

3.4.5.1 Apply pressure to the system. Back off pressure by turning off the valve supplying gases to the system. If the pressure on the gage drops, a leak in the system exists. If the pressure on the gage does not drop, the system is tight.

3.4.5.2 After applying pressure, wait two minutes to ensure pressure does not drop.

3.5 Use fire retardant materials aboard or immediately adjacent to the ship for staging, screening, temporary covers, shelters, deck covering, and ventilation ducts. ***Proper documentation of fire retardancy shall be available for review upon request.***

3.5.1 Lumber, except that used for pallets, shall be fire retardant in accordance with Category One, Type I, of MIL-L-19140. Plywood and staging boards shall be Category 2, Type II, of MIL-L-19140. |

3.5.2 Storage of material aboard ship shall be limited to that which is required for work in progress. Materials, trailers, temporary lights, flammable liquids, fueling of vehicles, and the rigging of hoses/welding leads/temporary lights aboard the ship shall comply with the following: Material, including that stowed in bins that are placed and held temporarily on hangar decks, well decks, or tank decks shall not exceed eight feet in height. A 20-foot-wide lane shall be maintained the length of hangar decks to act as a fire break. Material shall occupy a deck space not to exceed 25-feet by 25-feet with adjacent six-foot-wide aisles on each side for ready hose line access.

3.5.3 Prior to bringing equipment or working material aboard ship, its crating and packing shall be removed. If the equipment or material may be damaged during handling, the crating and packing shall be removed immediately after the equipment or working material is brought aboard and taken ashore for disposal. A small quantity of pallets may be staged in a location determined jointly by the contractor/ship/SUPERVISOR aboard ship for use in materials handling operations.

3.5.4 Trailers placed aboard the ship shall be equipped with an automatic or manual sprinkler system designed to provide 0.1 GPM per square foot of floor area and an audible alarm that will sound when the sprinkler system is activated. Tool issue shacks or other walk-in enclosures placed aboard the ship shall be constructed of fire retardant material, provided with at least one fire extinguisher of appropriate size and class at each access. The enclosure shall be supported at least 10 inches above the deck.

3.5.4.1 Smoke alarms, approved by Underwriter's Laboratory, shall be installed in enclosures and shall be audible outside the enclosures.

3.5.5 Temporary lights shall have three-conductor cable, guard or shield, hook, and lamp holder. Exposed non-current-carrying metal parts of the fixture shall be grounded either through a third wire in the cable containing the current conductors, or through a separate wire which is grounded at the fixture's voltage source.

3.5.6 Flammable or combustible liquids with a flash point of 150 degrees Fahrenheit or less, including degreasers, solvents, and fuels, shall be kept in safety cans when not in actual use or when left unattended. These liquids shall be limited to one day's supply for on board use.

3.5.7 Fueling of vehicles or transfer of fuel between containers shall be accomplished at designated sites on weather decks or in a location determined jointly by the contractor/ship/SUPERVISOR. Notify ship's Officer of the Deck prior to the fueling or transfer operation. When fuel is transferred between containers, the containers shall be bonded and grounded to prevent static discharge.

3.5.7.1 Provide a minimum of two dry chemical portable extinguishers, each with an Underwriter's Laboratory rating of at least 60-B:C at the fueling site.

3.5.8 Rigging of hoses, welding leads, and temporary lights shall be kept clear of the decks on temporary trees or brackets and be arranged to minimize tripping and other safety hazards and to allow free access through doors, hatches, and passageways.

3.6 Accomplish temporary access requirements as follows:

3.6.1 Temporary access cuts may be made in fire zone boundaries provided they are equipped with fume-tight steel closures when installed. Boundary degradation by use of temporary access cuts or passage of service lines shall be permitted only upon granting of a written waiver by the SUPERVISOR, in conjunction with the ship's designated representative, for a limited time.

3.6.1.1 Submit one legible copy, in hard copy or electronic media, of a record of boundary openings and their locations to the SUPERVISOR and one additional copy to the ship's designated representative. Resubmit boundary opening data when any changes, additions, or deletions of boundary openings occur.

3.6.2 Ensure at least one unobstructed access on ships designed with three or less accesses to each main and auxiliary machine space and at least two unobstructed accesses on ships designed with four or more accesses to each main and auxiliary machinery space.

3.7 Accomplish a fire prevention and housekeeping inspection on a daily basis whenever work is in progress. The inspection shall be made jointly with the SUPERVISOR and the Commanding Officer's designated representative. A

written report of the discrepancies and corrective action to be taken shall be prepared by the contractor and copies distributed to the SUPERVISOR and Commanding Officer's designated representative within four hours after completion of the inspection.

3.8 Determine fire zone boundaries as follows:

3.8.1 The SUPERVISOR, Ship's Force, and the contractor shall establish fire zone boundaries prior to start of production work.

3.8.1.1 Existing transverse watertight, airtight, and fume-tight bulkheads shall be used as fire zone boundaries on ships built prior to the requirements for fire zones.

3.8.1.2 For ships having fire zones by design, the designated bulkheads shall be used as fire zones.

3.8.2 Fire zone boundaries shall be continuous through the vertical extent of the ship, from the keel up to the highest weather deck, excluding the superstructure.

3.8.2.1 For ships that have established fire zone boundaries that run from keel up through the superstructure, the fire zone boundaries as depicted on the ship's damage control diagrams shall be observed.

3.8.2.2 On aircraft carriers, provide for closing of hangar division doors in case of fire in the event division doors being repaired by the contractor are mechanically inoperative. As a minimum, rig chain falls to manually close doors in the event of fire. Exceptions shall be permitted only upon execution of a written waiver approved by the SUPERVISOR.

3.8.3 Ships under 600 feet in length shall have a minimum of two fire zone boundaries. Ships 600 feet and over in length shall have a minimum of three fire zone boundaries.

3.8.3.1 Indicate each fire zone by installing a sign adjacent to each entrance.

3.8.3.2 Service line(s) shall not be run through fire zone boundaries unless quick disconnects are installed in temporary service lines within 10 feet of the opening, door, or closure. The quick disconnects shall be marked with international orange tape and all service line(s) must be able to be secured and pulled back within three minutes. Fuel gas/oxygen/compressed gas hoses, steam lines, high pressure hoses (above 90 PSI), or hoses carrying hazardous/toxic/flammable materials shall not be run through fire zone boundaries unless expressly authorized in writing by the SUPERVISOR. Hose numbers or sizes shall not restrict free and easy access or closure of fire zone boundary doors.

3.9 Report verbally each accident/fire occurring on the vessel involving contractor/subcontractor personnel to the SUPERVISOR as soon as management becomes aware of such an event.

3.9.1 ***Submit*** a formal written report, in hard copy or electronic media, of the event to the SUPERVISOR within 24 hours of each accident requiring medical treatment, and each fire. The written report shall contain the name and ID number of each injured person, date and time of accident/fire, extent of each personal injury or property damage, contractor/subcontractor name, Job Order, type of accident/fire, location of event (ship name and hull number, space, compartment), and a brief description of the event including occurrences leading up to the accident/fire.

4. NOTES:

4.1 None.